

ABSTRACT OF THE DISCLOSURE

A convertible stadium includes an exhibition area, a seating area and a plurality of roof support locations for supporting a movable or retractable roof assembly. The roof assembly includes a first major truss that spans a distance between a first and a second of the roof support locations and a second major truss that spans a distance between a third and a fourth of the roof support locations. Both of the first and second major trusses are preferably structurally configured as a tied arch, each of which has a generally convex upper portion and a lower portion that is adapted to assume gravity induced stresses within the trusses as tension. In order to keep the center of mass of the major trusses generally positioned within a plane including the roof support locations, which optimizes lateral stability of the major trusses, the major trusses are most preferably given a lenticular shape, meaning that the lower portion of the trusses is convex and in fact preferably generally symmetrical to the upper portion. First and second convex guide tracks are respectively mounted to the upper portions of the first and second major trusses, and a movable roof member is mounted for movement along the guide tracks. Advantageously, the guide wheels and the drive wheels on the movable roof member engage the upwardly facing and downwardly facing surfaces on the guide tracks, and are biased together so as to provide sufficient traction to be able to move the movable roof member along the guide tracks even when such movement has an upward component due to the convex shape of the guide tracks.